

GLOBAL CLIMATE HIGHLIGHTS

MAJOR CLIMATIC EVENTS AND ANOMALIES AS OF MAY 2, 1992

1. Western North America:

STILL VERY HOT.

Temperatures averaged as much as 7°C above normal, with daily highs soaring above 35°C in many areas and approaching 42°C in the deserts of southeastern California [21 weeks].

2. South-Central United States:

DRY WEATHER BRINGS RELIEF.

Little or no rain fell at most locations, allowing saturated soils to begin drying out; however, 50 to 100 mm of rain was measured at isolated locations along the northern fringe of the region [Ending at 29 weeks].

3. West-Central South America:

UNUSUAL WARMTH SPREADS INLAND.

Temperatures averaged up to 5°C above normal as unseasonably warm weather spread inland across most of Peru and into western Brazil. Daily highs climbed to 35°C at several stations [5 weeks].

4. Eastern Europe:

ABNORMALLY WET WEATHER CONTINUES.

Precipitation amounts generally ranged from 20 to 40 mm across most of northern Russia, but a few locations received as much as 85 mm [7 weeks].

5. Northeastern Africa and the Middle East:

COOL CONDITIONS REMAIN.

Weekly departures approached -5°C in Iran and Egypt as the region's cool spell persisted [7 weeks].

6. Southern Africa:

NOT AS HOT, BUT STILL DRY.

Some areas reported highs near 39°C, but temperatures returned to near normal at most locations [Ending at 14 weeks]. Scattered showers brought as much as 85 mm of rain to Mozambique and northeastern Zimbabwe, but most areas received under 10 mm. Six-week moisture deficits, however, are slowly decreasing as the normal dry season approaches. Since mid-March, shortages of up to 135 mm accumulated in some areas [21 weeks].

7. Sri Lanka and Southern India:

SCATTERED RAINS REPORTED.

Rains of 80 to 100 mm provided limited relief for a few locations; however, six-week deficits still ranged up to 165 mm [13 weeks].

8. Taiwan and Eastern China:

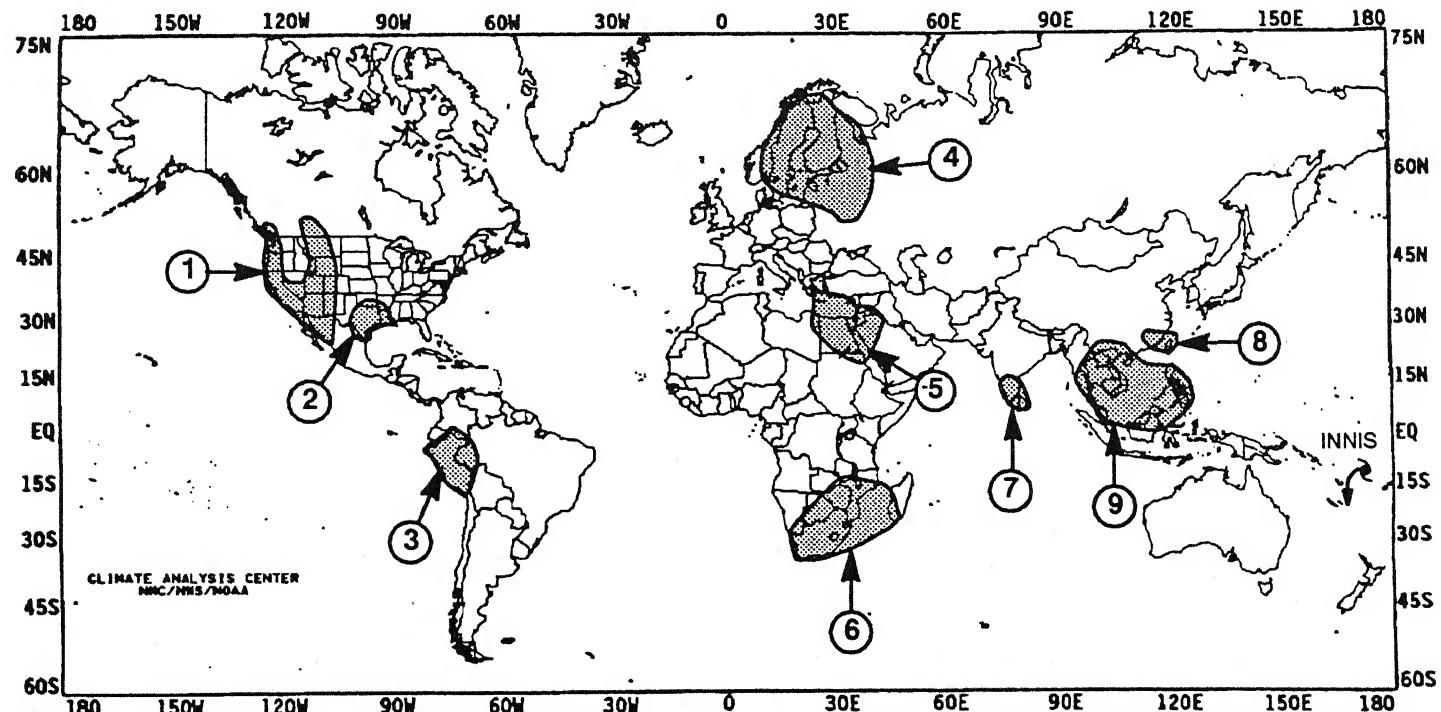
WET WEATHER EASES.

Large areas of eastern China, Korea, and Japan reported less than 20 mm of rain, although weekly totals reached 20 to 50 mm in Taiwan and 60 to 130 mm south of the Yangtze River Valley of China. During the last six weeks, Taiwan has recorded precipitation surpluses of up to 435 mm [13 weeks].

9. Southeastern Asia and the Philippines:

MORE HOT AND DRY WEATHER.

Temperatures averaged as much as 4°C above normal across the region as highs approached 42°C in Thailand [4 weeks]. Generally less than 20 mm of rain were observed, but isolated sections of Thailand and southern Vietnam received 60 to 80 mm. Precipitation deficits since mid-March were as high as 435 mm in the southeastern Philippines [18 weeks].



EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature departures are this week's values.
MAP: Approximate locations of major anomalies and episodic events are shown. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, long-term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS

FOR THE WEEK OF APRIL 26 – MAY 2, 1992

Record low temperatures in the eastern third of the nation, record warmth which spread from the Pacific toward the Atlantic coast later in the week, and severe storms that raked the southeastern Great Plains highlighted the week's weather. Unseasonably cool air prevailed over eastern states through the workweek as record daily lows were established from the middle and lower Mississippi Valley to the middle and southern Atlantic coast. Freezing temperatures were reported as far south as the Tennessee Valley, and lows over southern Florida were in the fifties on Wednesday morning. Key West, FL, had a record low 59°F, the city's third consecutive record low. In contrast, abnormally warm weather in the Far West advanced into the central states by mid-week. Readings soared in the Great Plains as the mercury reached the century mark in Valentine, NE, on Thursday. The unseasonably warm weather moved eastward Saturday, giving residents along the mid-Atlantic Coast an early taste of summer. Intense thunderstorms roared across northeastern Texas early Wednesday, spawning lightning, hail, high winds, and a few tornadoes. At least seven people were injured and millions of dollars in damage was caused in eight counties, according to press reports. Thunderstorms also battered eastern Oklahoma, southwestern Arkansas, and western Louisiana.

The week commenced with record daily highs baking the Far West from Idaho to the desert Southwest while scattered rain showers moved across the Great Lakes, Ohio Valley, southern New England, mid-Atlantic, and southern Plains. Rain persisted in the Pacific Northwest as a frontal system edged eastward across the northern Rockies and into the northern Plains by mid-week. Southwesterly flow brought abnormally warm air into the Southwest and the central and southern High Plains while a large high pressure system centered over the middle Mississippi Valley pulled unseasonably cool air southward into the East. On Tuesday, scattered thunderstorms dotted the upper Great Lakes, Great Plains, and lower Mississippi Valley. Strong thunderstorms struck eastern Oklahoma, causing power outages.

At mid-week, severe weather broke out in the southeastern Plains and western lower Mississippi

Valley as large hail pelted parts of Texas's Tarrant County. Winds of 75 mph were reported near Bridgeport, TX, and three inches of rain fell in just three hours at Shreveport, LA. During the remainder of the week, scattered showers and thunderstorms spread across the Mississippi Valley and Atlantic seaboard from the Carolinas northward while rain remained in the Pacific Northwest. Record warmth spread from the central and southern Rockies, across the Great Plains and the Great Lakes, to the mid-Atlantic region as the week ended.

According to the River Forecast Centers, the greatest weekly precipitation totals (between two and six inches) fell on eastern Oklahoma, eastern Texas, southwestern Arkansas, western Louisiana, and western Washington. Scattered amounts of over two inches were also reported in the central Appalachians, Northeast, and southeastern Alaska (Table 1). Light to moderate amounts were measured across much the remainders of the southern Plains, the lower Mississippi Valley, the Pacific Northwest, the central Appalachians, the Northeast, southeastern Alaska, the Ohio Valley, and the mid-Atlantic. Little or no precipitation fell on the Southeast, the upper and middle Mississippi Valley, the northern and central Plains, the Rockies, the Intermountain West, Hawaii, and the remainders of Alaska and the Far West.

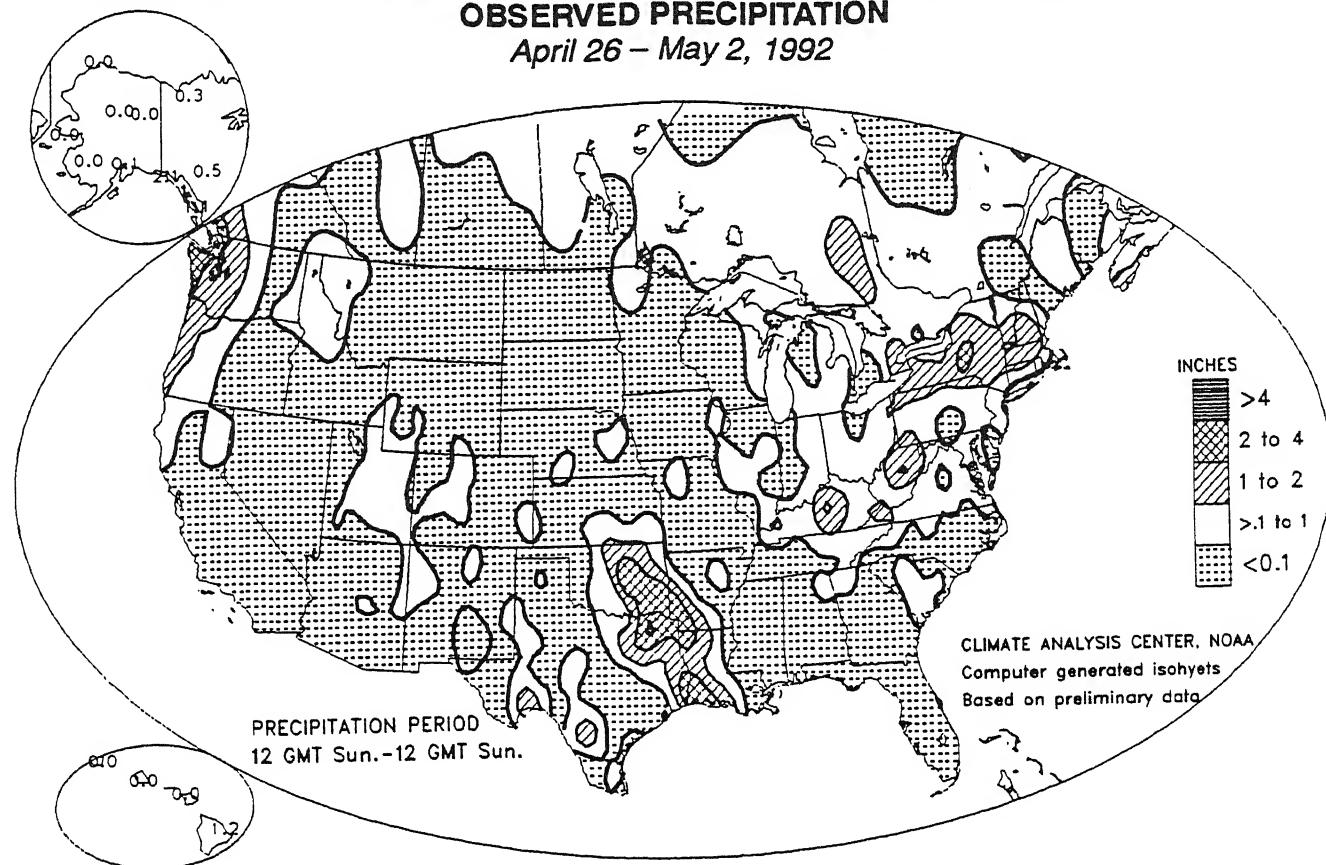
Unseasonably warm weather covered the western half the conterminous United States and the upper Mississippi Valley, with weekly departures between +10°F and +15°F in the Rockies, the Intermountain West, and California (Table 2). Departures of +3°F to +9°F were common in the Pacific Northwest, southern High Plains, central and northern Plains, and upper Mississippi Valley. In Alaska, above normal temperatures prevailed across the southeastern panhandle and along the south central coast.

Cooler than normal conditions prevailed in the lower Mississippi Valley, Southeast, Ohio Valley, mid-Atlantic, the northern Atlantic coast, and much of Alaska, with weekly departures below -3°F. Exceptionally chilly conditions gripped northern and central Alaska and the Southeast, where departures between -9°F and -16°F were observed (Table 3).

TABLE 1. SELECTED STATIONS WITH 1.50 OR MORE INCHES OF PRECIPITATION DURING THE WEEK OF APRIL 26 – MAY 2, 1992

| <u>STATION</u> | <u>TOTAL</u> (INCHES) | <u>STATION</u> | <u>TOTAL</u> (INCHES) |
|--------------------------------|--------------------------|-----------------------|--------------------------|
| QUILLAYUTE, WA | 5.72 | YAKUTAT, AK | 2.09 |
| BOSSIER CITY/BARKSDALE AFB, LA | 3.34 | BELLINGHAM, WA | 1.96 |
| MCALENN, TX | 3.23 | UTICA, NY | 1.94 |
| LAKE CHARLES, LA | 3.06 | SITKA, AK | 1.78 |
| MCALESTER, OK | 2.89 | SYRACUSE, NY | 1.61 |
| SHREVEPORT, LA | 2.52 | ROME/GRIFFISS AFB, NY | 1.58 |
| ANNETTE ISLAND, AK | 2.11 | | |

OBSERVED PRECIPITATION
April 26 – May 2, 1992



DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)
April 26 – May 2, 1992

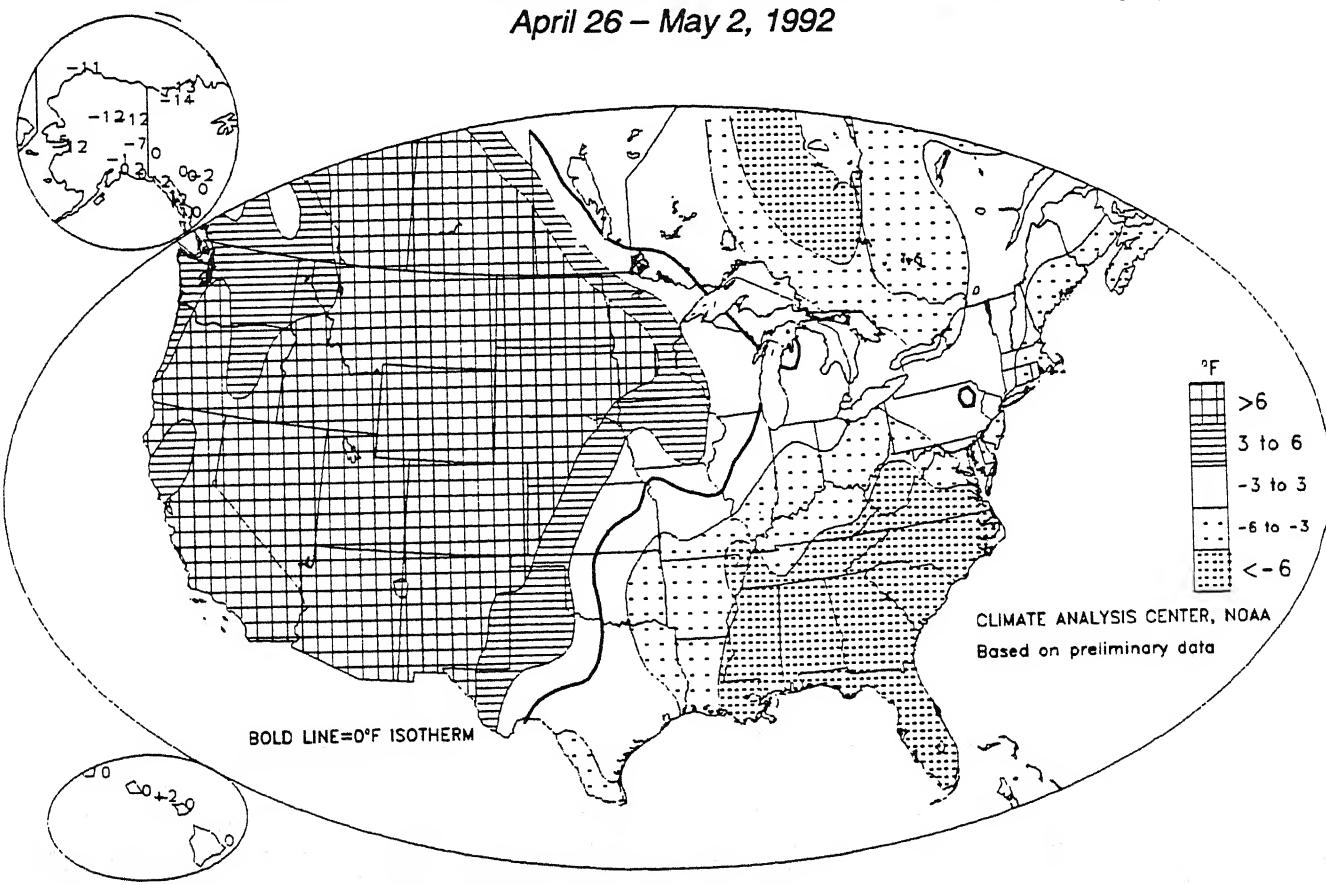


TABLE 2. SELECTED STATIONS WITH TEMPERATURES AVERAGING 10.5°F OR MORE ABOVE NORMAL FOR THE WEEK OF APRIL 26 – MAY 2, 1992

| STATION | DEPARTURE (°F) | AVERAGE (°F) | STATION | DEPARTURE (°F) | AVERAGE (°F) |
|------------------------------|-------------------|-----------------|--------------------|-------------------|-----------------|
| PHOENIX, AZ | +15.1 | 87.3 | LAS VEGAS, NV | +11.1 | 79.1 |
| TUCSON, AZ | +12.9 | 81.6 | AKRON, CO | +11.0 | 62.1 |
| GLENDALE/LUKE AFB, AZ | +12.2 | 83.4 | BILLINGS, MT | +11.0 | 60.8 |
| LANDER, WY | +12.2 | 59.5 | PREScott, AZ | +10.8 | 65.3 |
| TUCSON/DAVIS-MONTHAN AFB, AZ | +12.1 | 80.2 | CHEYENNE, WY | +10.8 | 57.6 |
| GRAND JUNCTION, CO | +11.5 | 67.9 | BURLEY, ID | +10.7 | 60.7 |
| FLAGSTAFF, AZ | +11.5 | 56.9 | ELY, NV | +10.7 | 56.0 |
| DENVER, CO | +11.4 | 63.5 | CUT BANK, MT | +10.7 | 55.2 |
| RENO, NV | +11.3 | 61.4 | SALT LAKE CITY, UT | +10.6 | 64.1 |
| GLASGOW, MT | +11.3 | 60.6 | TONOPAH, NV | +10.6 | 62.4 |
| ROCK SPRINGS, WY | +11.3 | 56.2 | CEDAR CITY, UT | +10.5 | 61.7 |
| MERCED/CASTLE AFB, CA | +11.2 | 74.0 | | | |

TABLE 3. SELECTED STATIONS WITH TEMPERATURES AVERAGING 9.0°F OR MORE BELOW NORMAL FOR THE WEEK OF APRIL 26 – MAY 2, 1992

| STATION | DEPARTURE (°F) | AVERAGE (°F) | STATION | DEPARTURE (°F) | AVERAGE (°F) |
|-----------------------------|-------------------|-----------------|-------------------|-------------------|-----------------|
| KOTZEBUE, AK | -16.0 | 6.1 | VERO BEACH, FL | -9.8 | 64.3 |
| FT YUKON, AK | -12.7 | 20.1 | MOBILE, AL | -9.7 | 61.8 |
| BETTLES, AK | -12.5 | 21.2 | CROSS CITY, FL | -9.6 | 61.2 |
| BARROW, AK | -11.2 | -2.8 | JACKSONVILLE, FL | -9.6 | 62.5 |
| GAINESVILLE, FL | -11.2 | 61.4 | COLUMBIA, SC | -9.4 | 58.3 |
| BRUNSWICK, GA | -10.5 | 60.2 | TALLAHASSEE, FL | -9.4 | 61.0 |
| TAMPA, FL | -10.4 | 64.0 | DAYTONA BEACH, FL | -9.4 | 62.9 |
| ST PETERBURG-CLEARWATER, FL | -10.4 | 65.6 | MONTGOMERY, AL | -9.3 | 59.5 |
| MACON/WARNER-ROBINS AFB, GA | -10.2 | 59.8 | WAYCROSS, GA | -9.2 | 61.5 |
| MACON, GA | -9.9 | 59.2 | | | |

EXTREME MINIMUM TEMPERATURE (°F)

April 26 – May 2, 1992

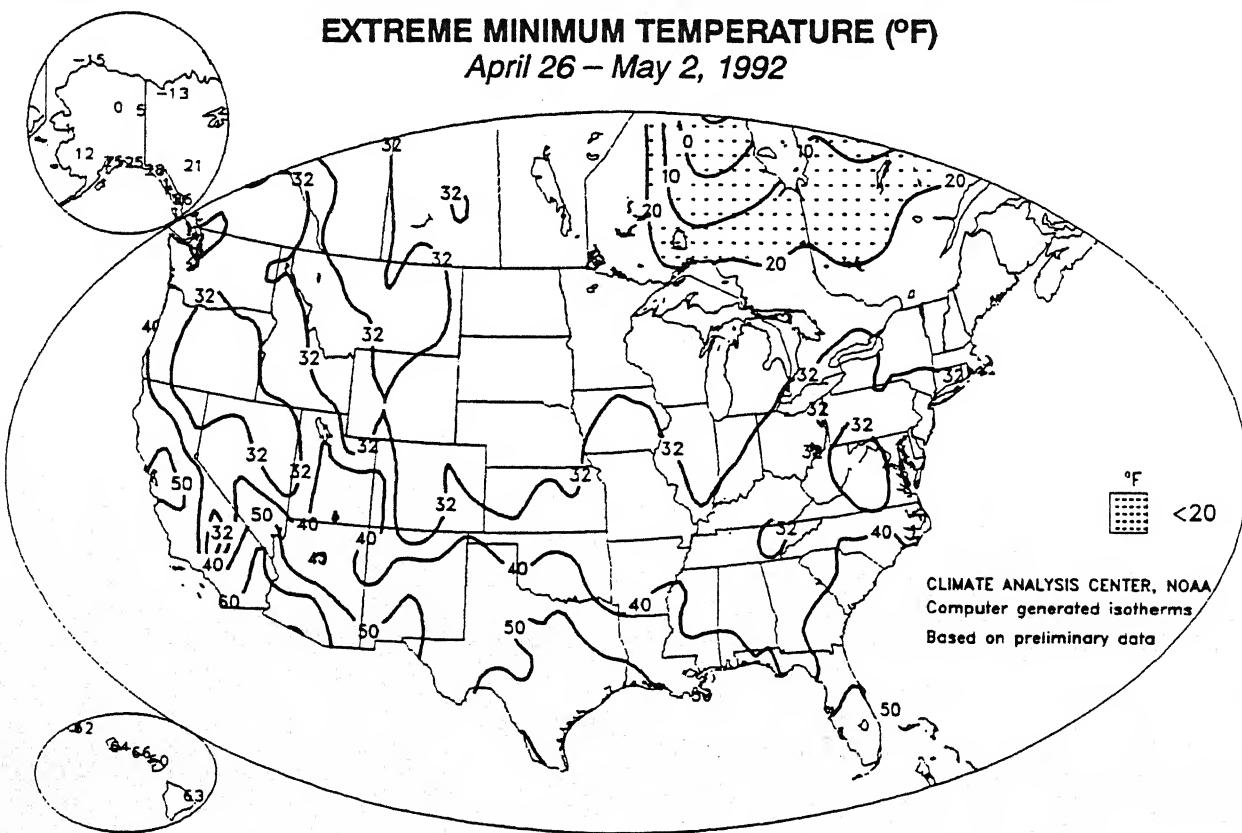
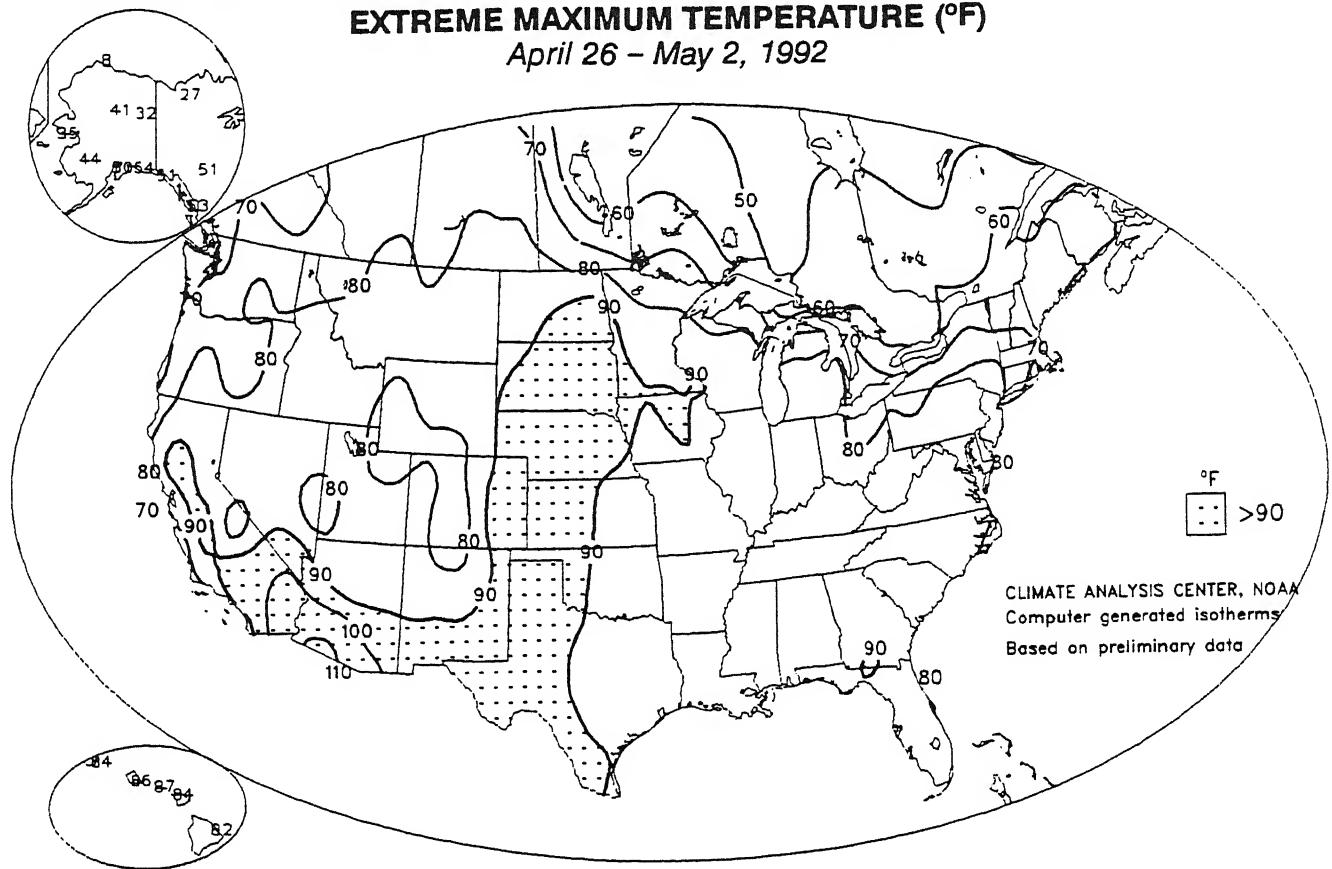


FIGURE 1. Temperatures dipped below freezing throughout the northern Plains, Northeast, Tennessee Valley, parts of the mid-Atlantic, and portions of the Rockies and Intermountain West.

EXTREME MAXIMUM TEMPERATURE (°F)

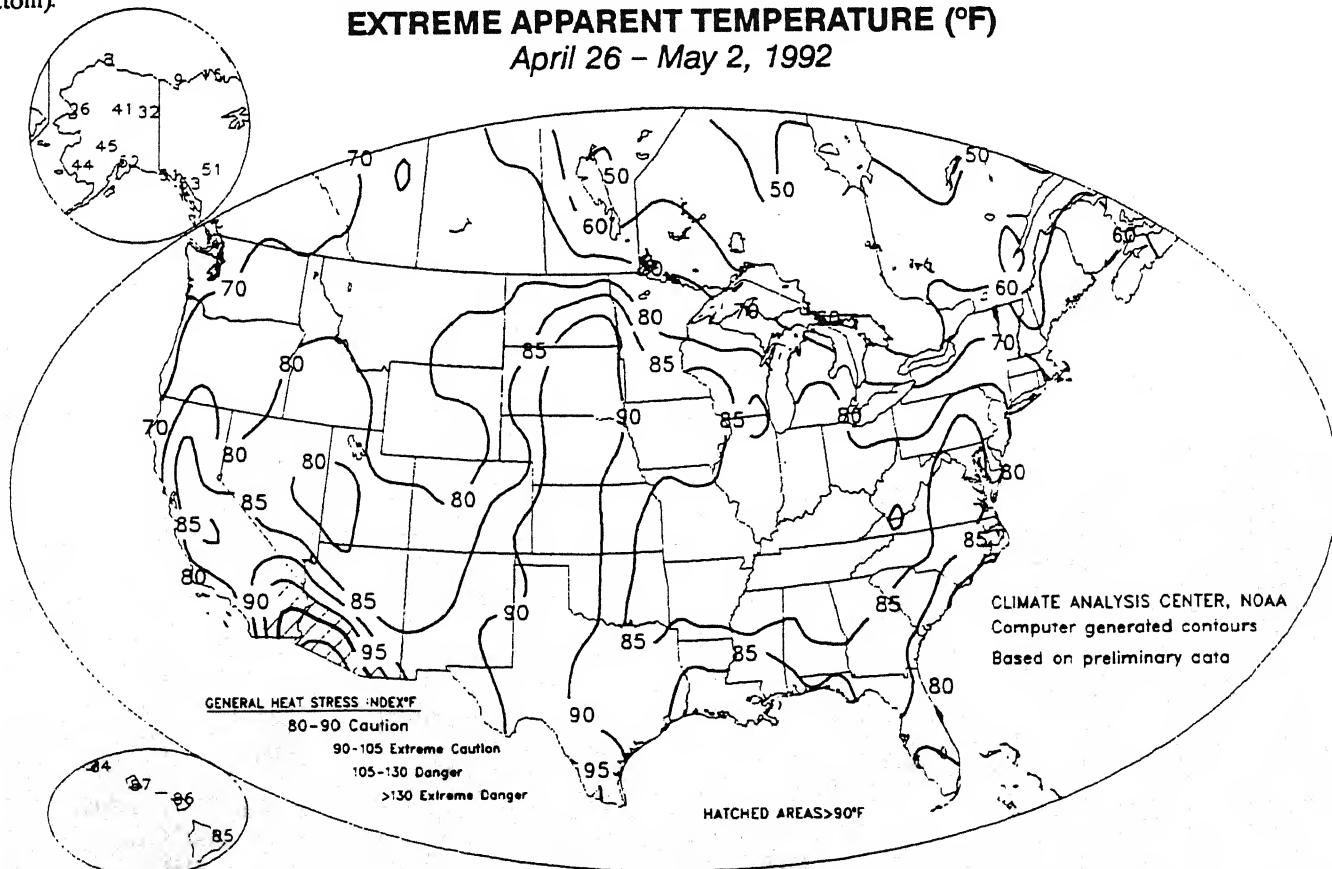
April 26 – May 2, 1992



Temperatures topped 80°F in all but the Pacific Northwest, the extreme northern Plains, New England, and parts of Rockies. Readings soared above 90°F throughout the central Great Plains and the Southwest, where desert regions exceeded 110°F (top). Humidity combined with the high temperatures to cause apparent temperatures to rise above 85°F through much of the southeastern and central United States. In contrast, relatively low humidities kept apparent temperatures below actual readings in the Southwest, southern Rockies, and Intermountain West (bottom).

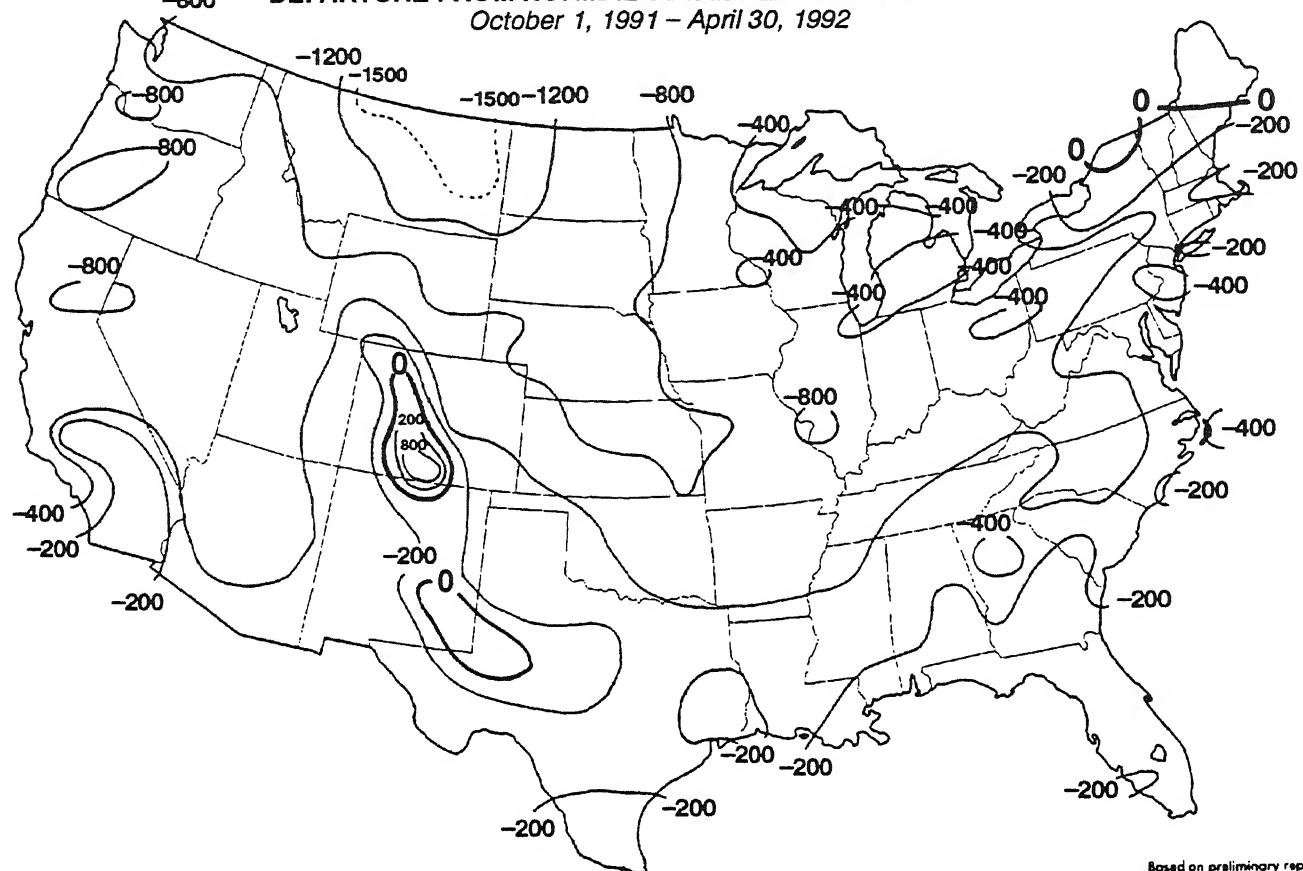
EXTREME APPARENT TEMPERATURE (°F)

April 26 – May 2, 1992



DEPARTURE FROM NORMAL TOTAL HEATING DEGREE DAYS

October 1, 1991 – April 30, 1992

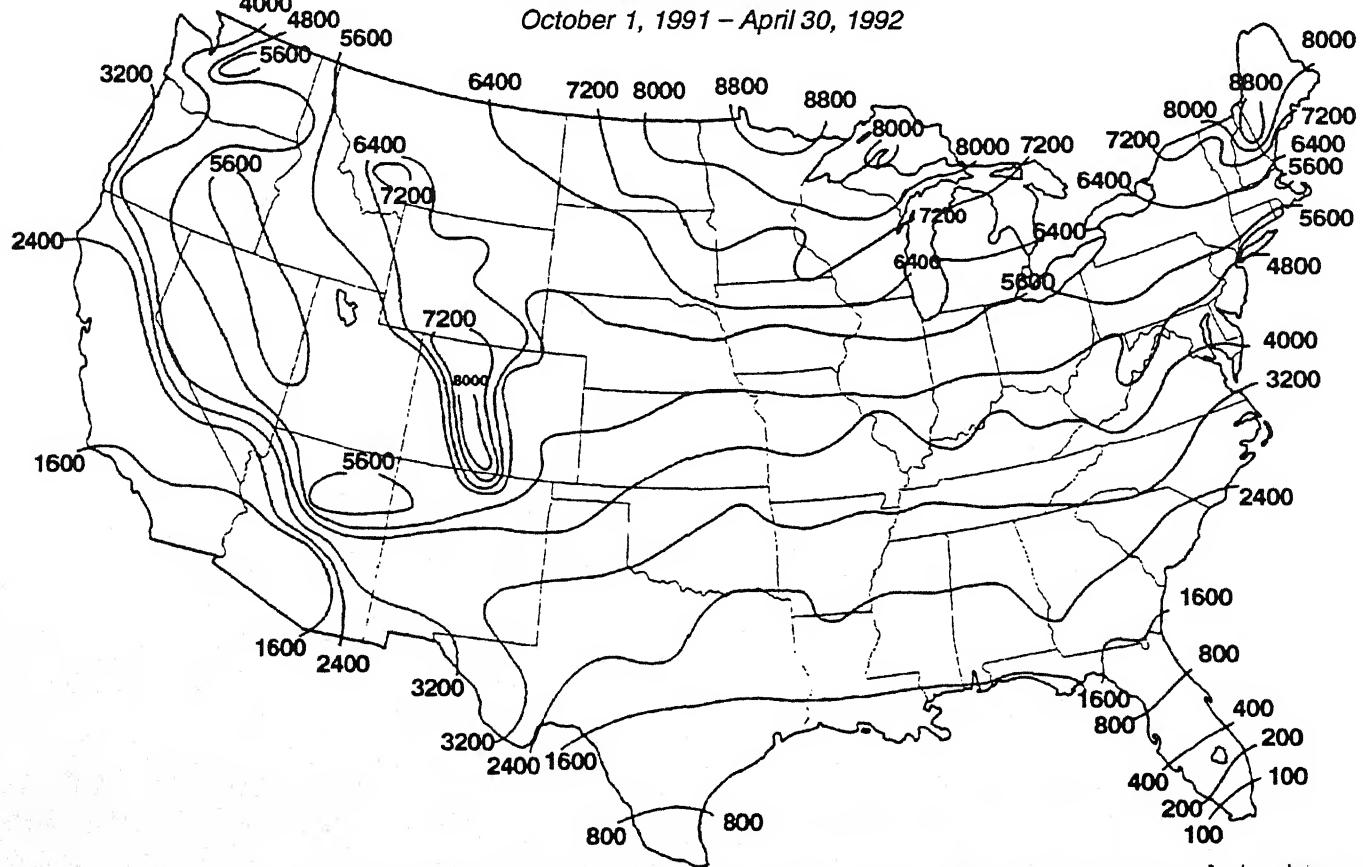


Based on preliminary reports

The seven coldest months in the Northern Hemisphere (October – April) brought unusually mild weather to the U.S. as a whole and, therefore, generated abnormally light heating demand in most areas. Only portions of northern New England and the Rockies accumulated above normal HDD totals while portions of the northern and central Great Plains and northern High Plains recorded 1000 to 1600 fewer HDD's than normal (top). The heaviest heating usage for the period (>8000 HDD's) was reported in parts of the central Rockies and in northern portions of the upper Mississippi Valley, Great Lakes, and New England (bottom).

TOTAL HEATING DEGREE DAYS

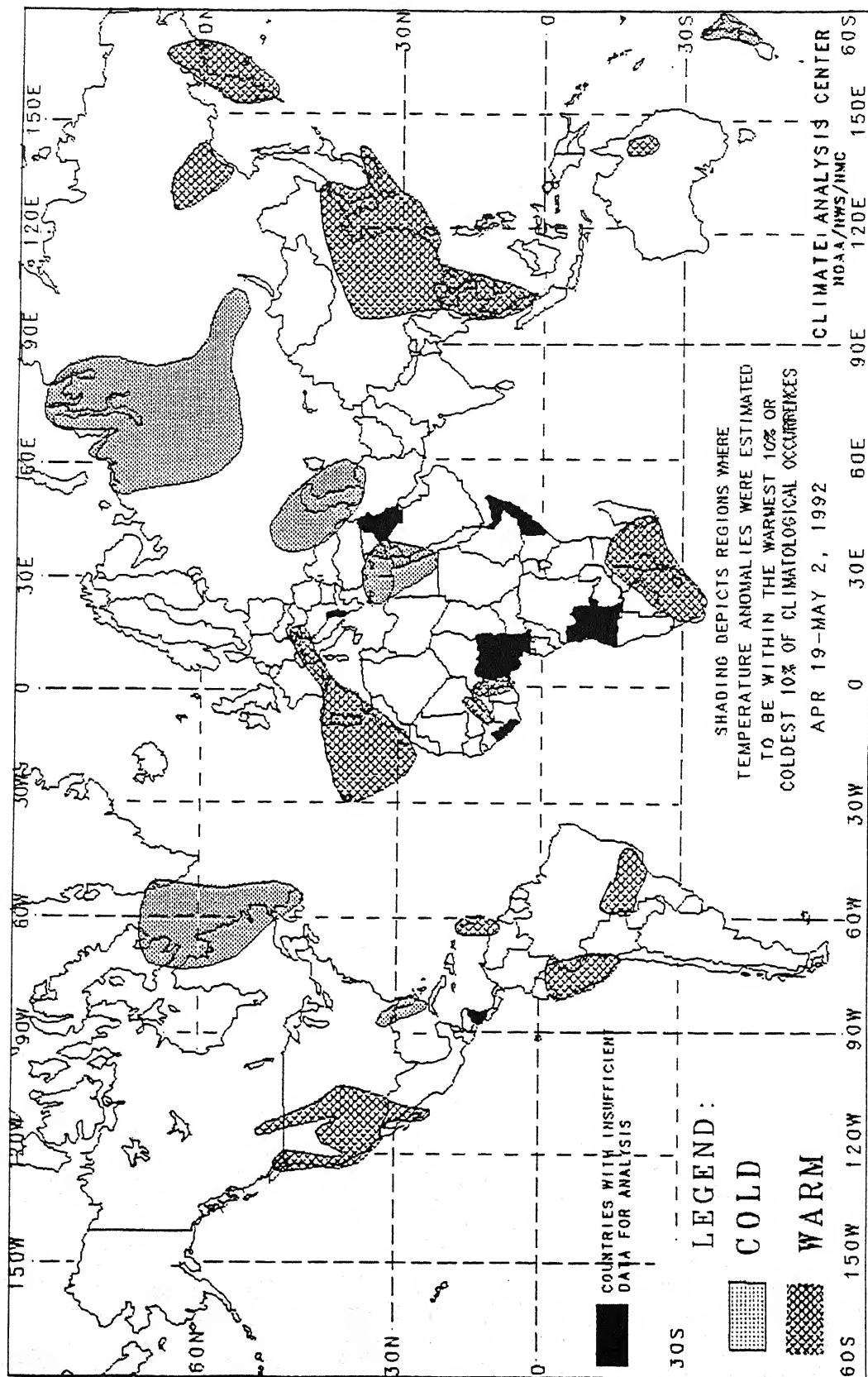
October 1, 1991 – April 30, 1992



Based on preliminary reports

2-WEEK GLOBAL TEMPERATURE ANOMALIES

APRIL 19 - MAY 2, 1992



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

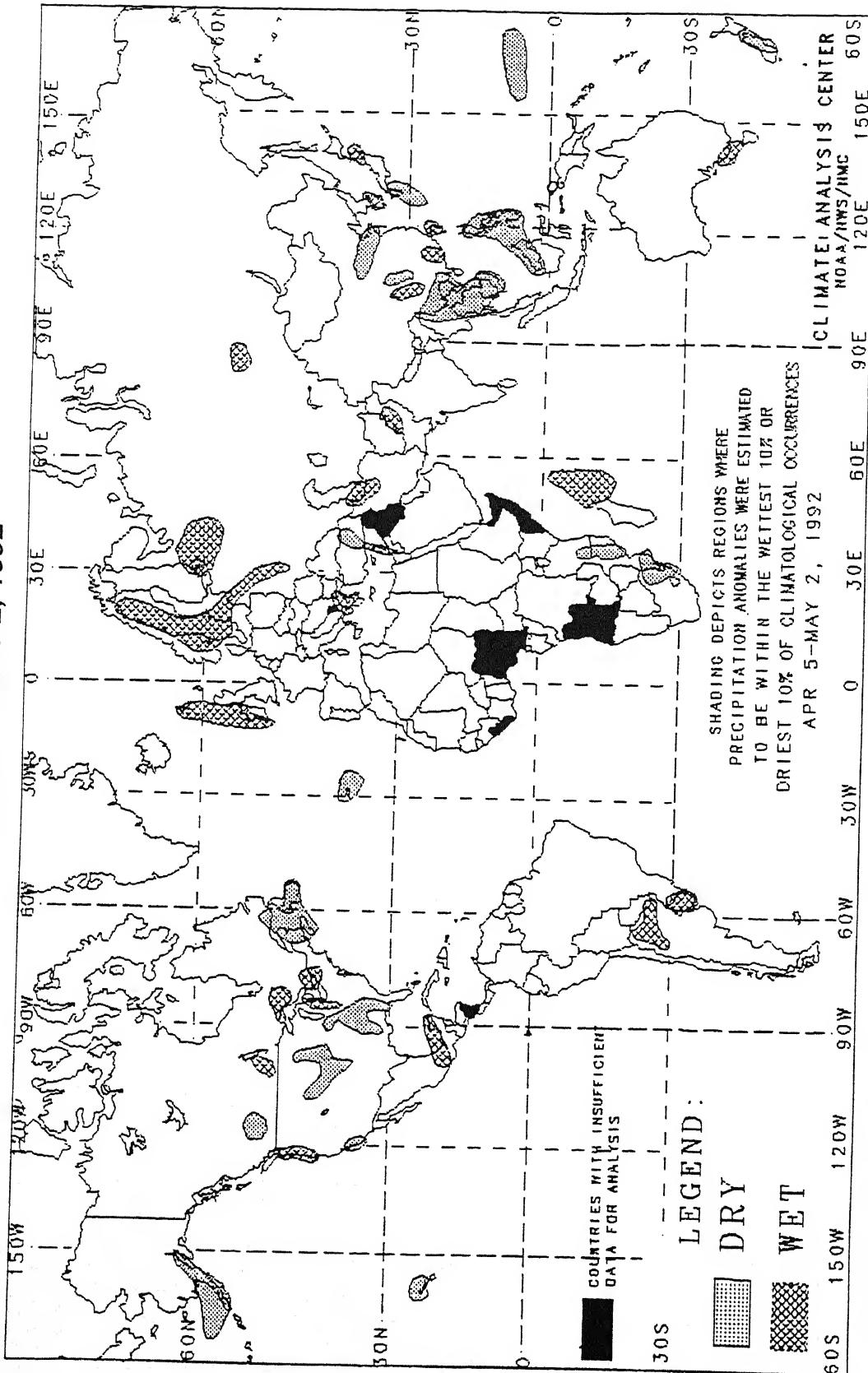
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C .

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

4-WEEK GLOBAL PRECIPITATION ANOMALIES

APRIL 5 – MAY 2, 1992



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

SPECIAL CLIMATE SUMMARY

CLIMATE ANALYSIS CENTER, NMC
NATIONAL WEATHER SERVICE, NOAA

SUMMARY OF THE 1991 – 1992 SOUTHERN HEMISPHERE RAINY SEASON

The rainy season typically commences during the spring months (September – November), reaches a maximum during summertime (December – February), and gradually diminishes in early autumn across portions of the Southern Hemisphere, particularly much of northern and eastern Australia, southeastern South America, and southern Africa. The spring/summer maximum was depicted in the Weekly Climate Bulletin #90/48 (dated 12/1/90) on pages 10–12. A large majority of the aforementioned areas normally receive over 75% of their annual rainfall during October – April, with portions of extreme northern Australia, south-central Brazil and northern Argentina, and much of south-central Africa recording over 90% of the mean yearly total during the same seven-month period. As a result, adequate and timely rainfall is necessary during this period for agricultural and hydrological interests since significant precipitation is rare during May – September.

Another factor that influences the short-term Southern Hemisphere climate is the current low-index (warm) ENSO episode (see Weekly Climate Bulletin #92/15, dated April 11, 1992, pp. 17–22, for more details). Low-index ENSO episodes typically induce a wet November–

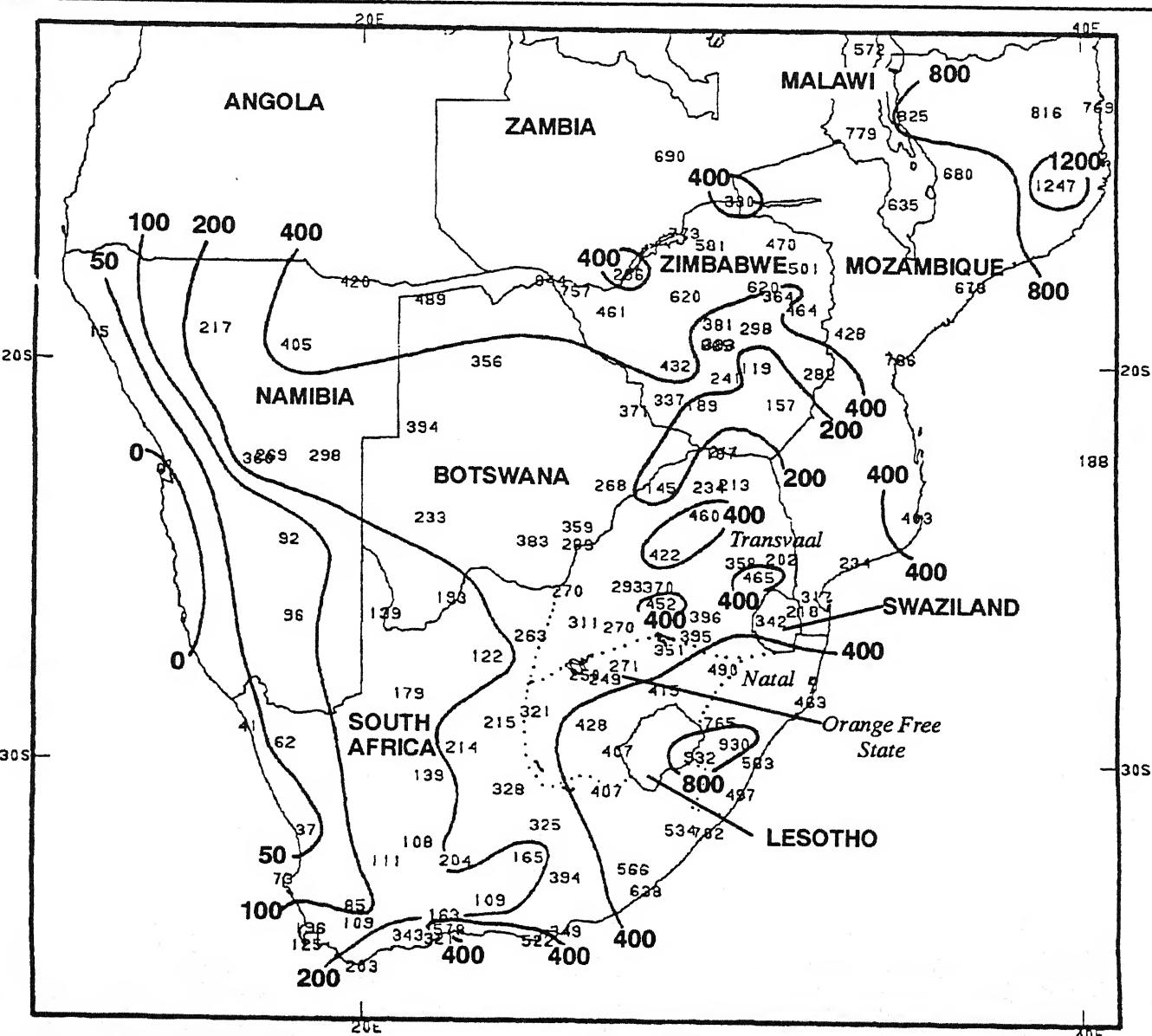


FIGURE 1. Total Precipitation (mm) during October 1, 1991 – April 30, 1992 [213 days]. At least 171 daily reports (80%) required for inclusion. Isopleths drawn for 0 mm, 50 mm, 100 mm, 200 mm, 400 mm, 800 mm, and 1200 mm. A wide range of rainfall totals was reported across southern Africa during the seven-month period, ranging from under 100 mm in western sections of Namibia and South Africa to over 800 mm in northeastern Mozambique and parts of southern Natal. Portions of southern Mozambique and Zimbabwe received less than 200 mm, which represents only 20%–50% of the region's normal.

February from southern Brazil southward to east-central Argentina, and abnormally warm May – April period through much of southeastern South America, a warm November – June through all of eastern Australia except southern Queensland, an unusually dry March – February across eastern Australia except southeastern Queensland and eastern New South Wales, a warm October – June period across southern Africa except for far western Namibia and extreme southern South Africa, and an abnormally dry November – May across Mozambique, Zimbabwe, eastern Botswana, Zambia, and Malawi. To some extent, all of the anomalous precipitation patterns have been evident during 1991 – 1992, but of the typical ENSO-related temperature anomalies, only the warmth in southern Africa has been observed with any regularity. Please note, however, that some of the ENSO-related anomalies extend through May and/or June.

The Southern Hemisphere's rainy season through January 18, 1992 is covered in detail in the Weekly Climate Bulletin #92/03, dated January 18, 1992. At that time, cumulative rainfall totals since October 1, 1991 were well below normal across most of southern Africa north of central South Africa and throughout eastern Australia, except in southwestern Queensland and northeastern New South Wales. In contrast, adequate to abundant rainfall had soaked most of southeastern South America, although some deficient totals were reported across extreme southern Brazil, southeastern Brazil, and southeastern Paraguay.

Since the last update, the most significant development in the Southern Hemisphere rainy season was the exceedingly dry conditions that intensified across southern Africa, particularly through eastern Zimbabwe and southern Mozambique, where only scattered weekly totals of 20–50 mm were reported during the first and third weeks of March, with little or none measured during the rest of the period (see front cover and Figure 1). The greatest seasonal rainfall deficits (500–750 mm) were found in these areas, as well as adjacent Transvaal. The aforementioned areas received some additional rain when scattered showers brought 30–90 mm in late April. Farther south, rainfall was a little

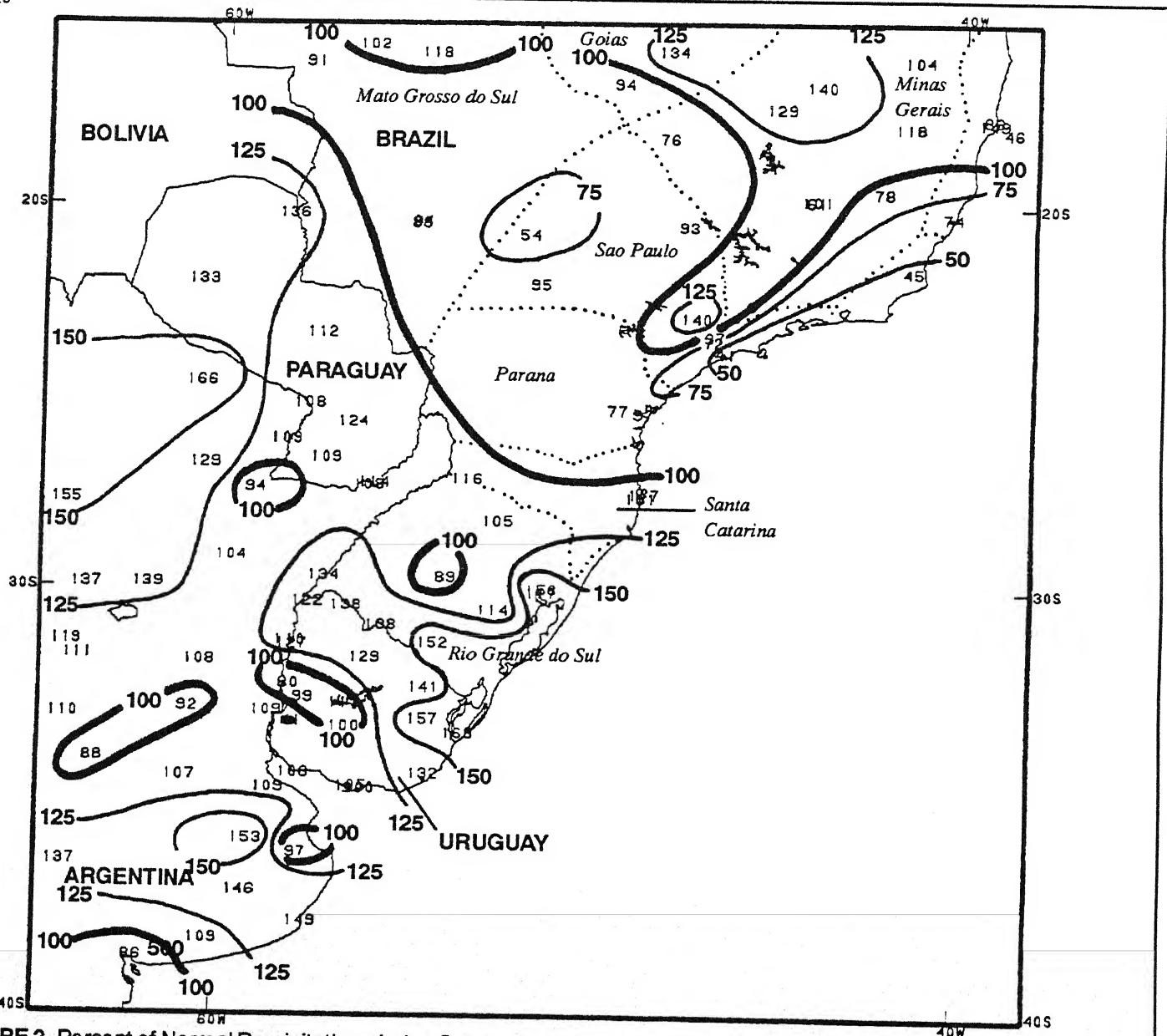


FIGURE 2. Percent of Normal Precipitation during October 1, 1991 – April 30, 1992 [213 days]. At least 171 daily reports (80%) required for inclusion. Isopleths drawn for 75%, 100%, 125%, and 150%. Abundant rains soaked most of southeastern South America during the 1991 – 1992 rainy season, with widespread subnormal totals restricted to extreme southeastern Brazil from Santos northeastward. Most of Uruguay, northern Argentina, and extreme southern Brazil received 125% – 175% of normal rainfall.

more consistent across the Transvaal, Natal, and Orange Free State, where scattered weekly amounts of 20–60 mm were observed with somewhat more frequency. Although reliable data are lacking across Botswana and Zambia, press reports indicate that the major agricultural areas in those countries were also severely affected by the subnormal rainy season.

Shortly after our last update, February brought abundant rains to most of the northern and eastern sections of eastern Australia. Weekly totals reached as high as 300 mm at some location in northern or eastern Queensland or eastern New South Wales during each week in February and the first week of March. Around mid-February, torrential cloudbursts pummeled southeastern Queensland, bringing some of the region's worst flooding this century. Conditions began drying out by March 8, except for Tropical Storm Fran, which dumped up to 150 mm on the east-central Queensland coast during the third week of March. By the end of April, enough rain had fallen to counterbalance the previously accumulated deficits in southeastern Queensland and eastern New South Wales. Unfortunately, the rains were not nearly sufficient in western Victoria, southwestern New South Wales, and central and northeastern Queensland, where under half of normal seasonal totals were registered (Figure 4). The region's largest shortfalls for the seven-month period were found in the Cape York Peninsula and along the east-central and northeastern coast of Queensland, where totals of 350–1005 mm were 500–1005 mm below normal (Figure 5). The rainy season in South America was relatively uneventful. Any anomalies that briefly appeared quickly diminished, except for the dry conditions that persisted across extreme southeastern Brazil, which is not a primary crop area (Figure 2). Most locations reported above normal totals, with much of extreme southern Brazil, northern Uruguay, northern Argentina, and northwestern Paraguay receiving 720–1400 mm, which represents 125%–170% of normal (Figure 3). Flooding briefly swept through isolated parts of extreme northern Argentina shortly after the last update, but drier conditions rapidly ensued, engendering quick relief. Flooding also swept through portions of northern Bolivia and central Brazil (north of the maps in Figures 2 and 3) during the last half of March.

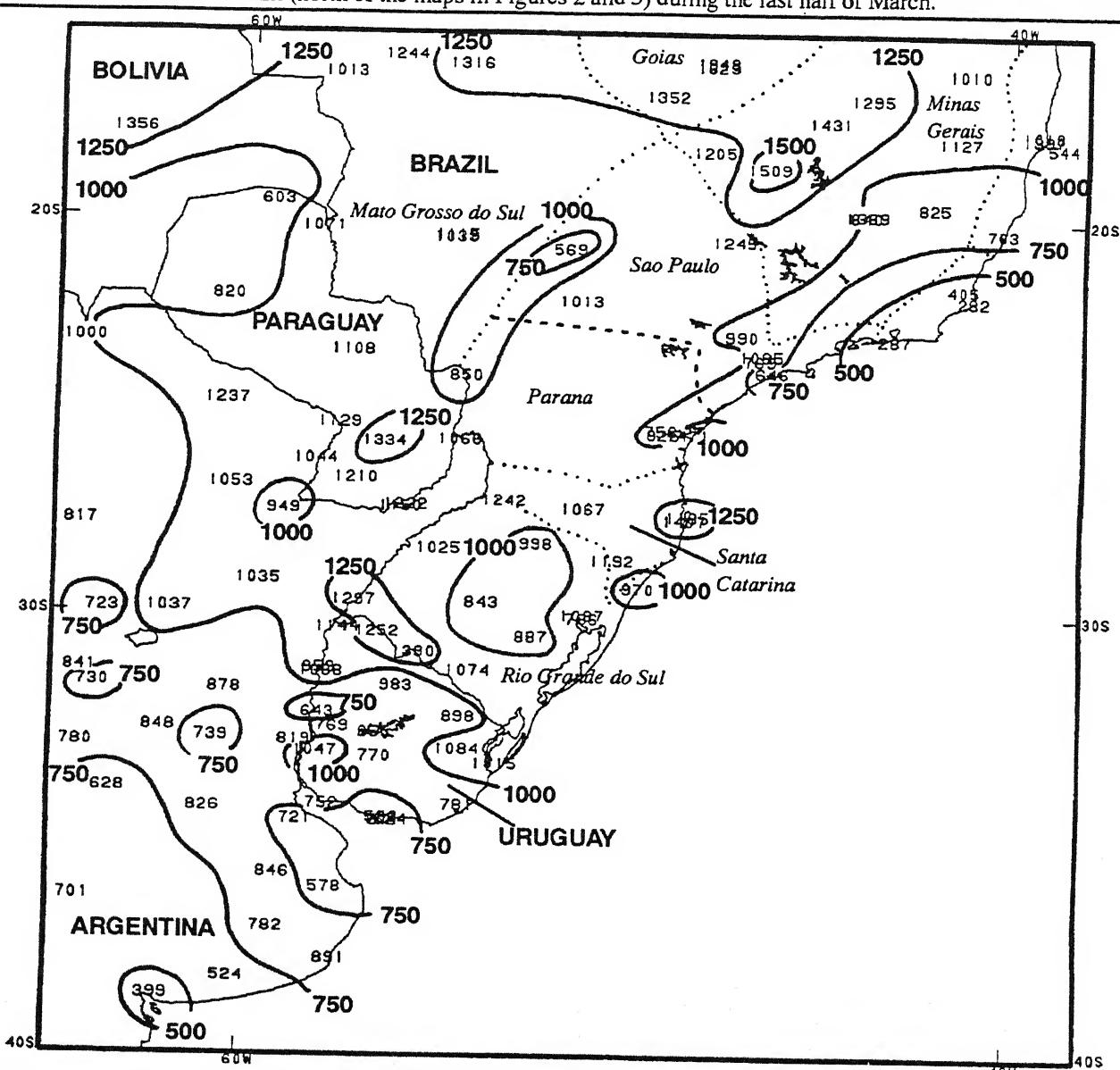


FIGURE 3. Total Precipitation (mm) during October 1, 1991–April 30, 1992 [213 days]. At least 171 daily reports (80%) required for inclusion. Isopleths drawn for 500 mm, 750 mm, 1000 mm, 1250 mm, and 1500 mm. Rainfall totals of 750 mm to 1250 mm covered most of the region for the seven-month period, with some higher totals recorded in extreme southern Brazil and adjacent Uruguay and Argentina, southeastern Paraguay, and from central sections of Brazil and Bolivia northward into the rain forests. Amounts of under 500 mm were restricted to a small part of eastern Argentina and extreme southeastern Brazil.

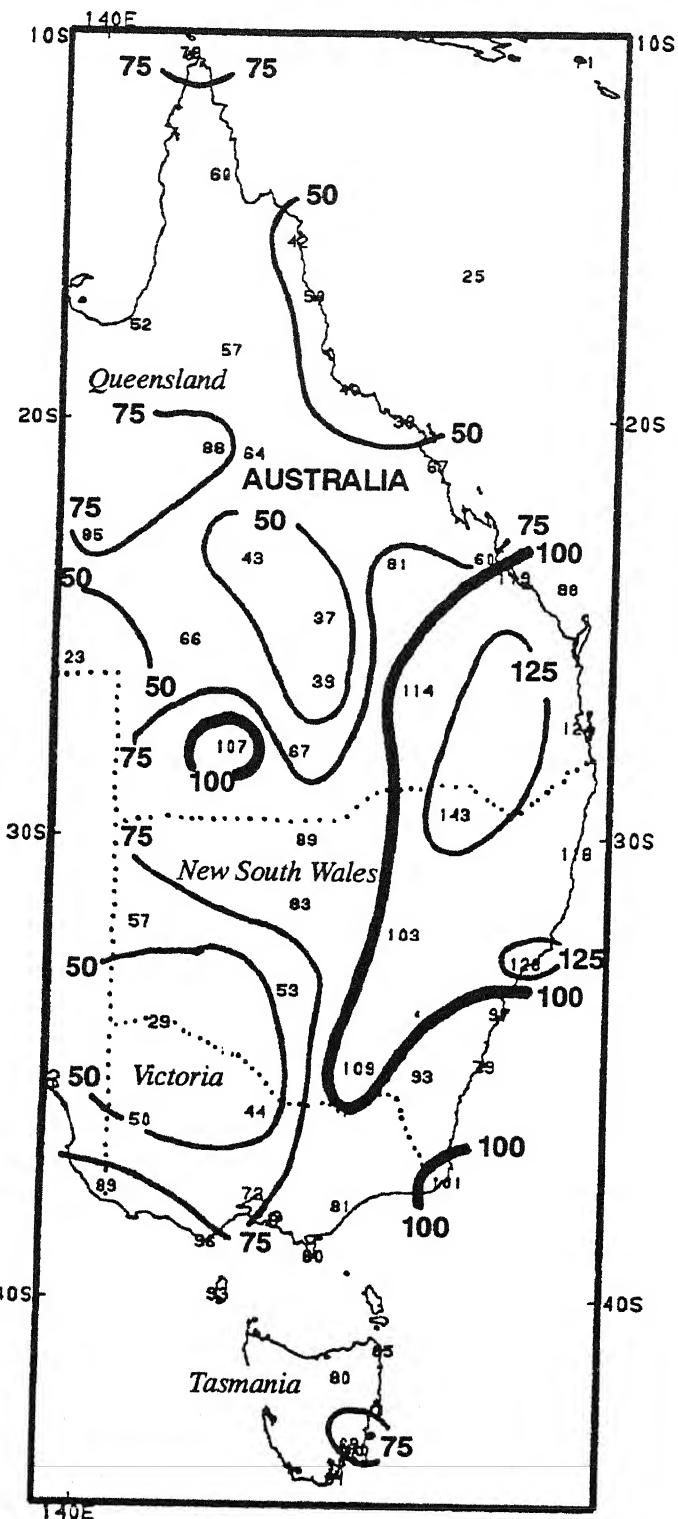


FIGURE 4. Percent of Normal Precipitation during October 1, 1991 – April 30, 1992 [213 days]. At least 171 daily reports (80%) required for inclusion. Isopleths drawn for 50%, 75%, 100%, and 125%. The eastern Australian rainy season began very slowly and remained abnormally dry into February, but heavy late-season rains alleviated previous deficits in southeastern Queensland and eastern New South Wales. Some of the century's worst flooding accompanied the downpours in southeastern Queensland. Farther north and west, however, the late rains did not bring significant relief, allowing many areas to record under 50% of normal seasonal totals.

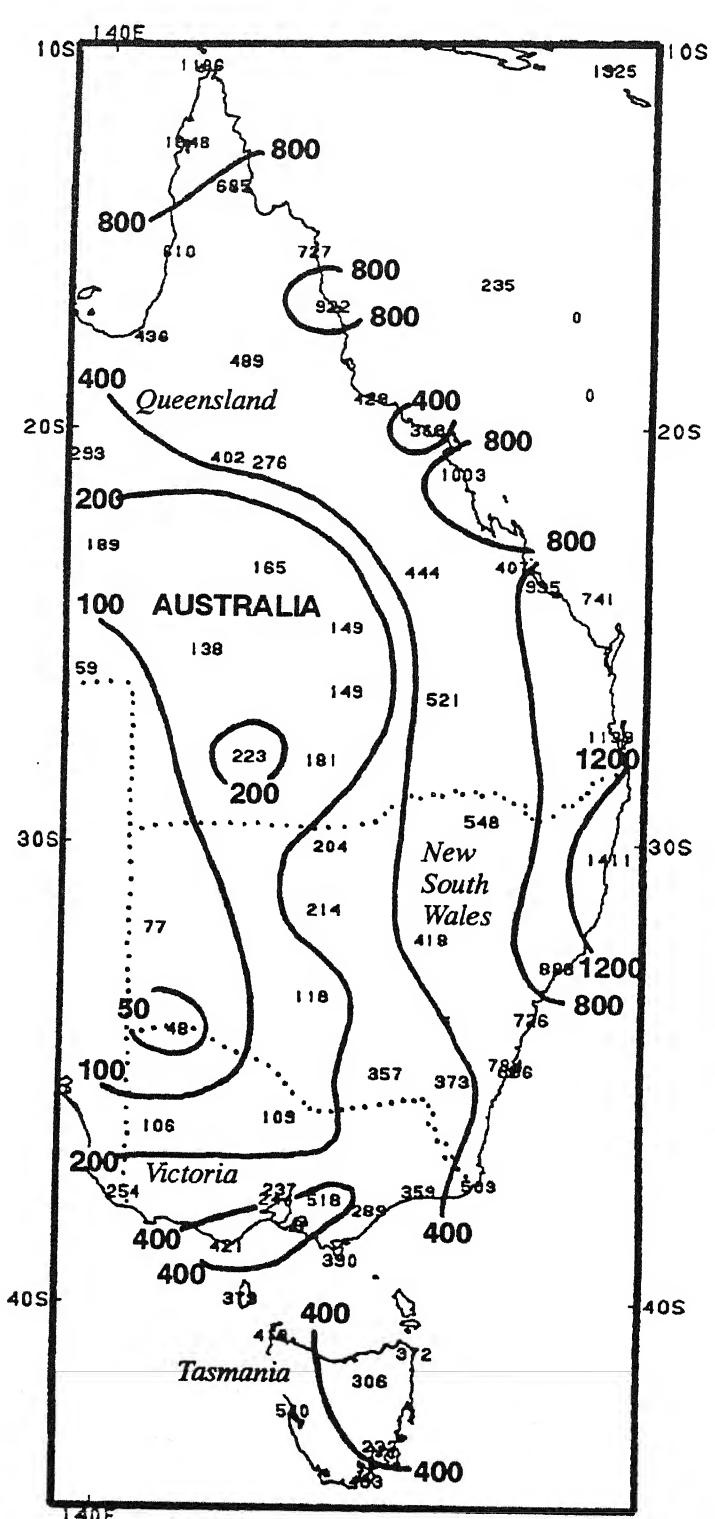


FIGURE 5. Total Precipitation (mm) during October 1, 1991 – April 30, 1992 [213 days]. At least 171 daily reports (80%) required for inclusion. Isopleths drawn for 50 mm, 100 mm, 200 mm, 400 mm, 800 mm, and 1200 mm. Rainfall amounts increased from west to east across the eastern half of the continent, with totals ranging from less than 100 mm in eastern sections of the Outback to above 1200 mm in northeastern New South Wales.